

Research Article

When up brings you down: The effects of imagined vertical movements on motivation, performance, and consumer behavior

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Received 2 March 2013; received in revised form 2 December 2013; accepted 3 December 2013

Available online 11 December 2013

Abstract

Previous embodied cognition research suggests that “up” is associated with positivity (e.g., good, divine), whereas “down” is associated with negativity (e.g., bad, evil). We focus on the effect of vertical movements on consumer behavior and go beyond investigating mere affective associations of verticality. In five studies, we provide evidence that the mental simulation of vertical movements has counterintuitive effects on behavior—that is, imagining moving up hampers motivation and performance by boosting self-worth. A pilot study shows that the imagination of vertical movements affects self-worth. Studies 1, 2 and 3 show that imagining upward movements (e.g., taking an elevator ride up or taking off in an airplane) diminishes motivation as well as performance. Studies 4 and 5 show that imagining moving upward (downward) makes people feel better (worse) about themselves which, in turn, decreases (increases) their motivation to succeed on a subsequent task, hence worsening (improving) performance. This occurs independently of respondents’ mood.

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Keywords: Embodied cognition; Mental simulation; Mental imagery; Self-worth; Compensatory consumer behavior

Introduction

Advertising and other media often evoke images of vertical movements in which people move up or down (e.g., taking an elevator, taking off or landing in an airplane). As an example, consider television advertisements (ads), such as Gillette Venus “elevator ad,” Delta Airlines “keep climbing,” and Jimmy Johns “55th floor,” that show people moving upward. We suggest that, in addition to the intended message (e.g., Jimmy John’s delivers fast), ads that prompt the imagination of vertical movements might have unexpected consequences on consumers’ self-worth and behavior.

The field of embodied cognition has produced considerable evidence that sensory-motor experiences can affect perception

and judgment through metaphorical associations (e.g., Hung & Labroo, 2010; Krishna, 2012; Lee & Schwarz, 2010; Li, Wei, & Soman, 2010; Meier, Hauser, Robinson, Friesen, & Schjeldahl, 2007; Meier & Robinson, 2004; Schubert, 2005; Schubert & Koole, 2009; Williams & Bargh, 2008). Among the phenomena investigated by that research are the associations between *up* and positivity (e.g., good, divine, virtue, power) and between *down* and negativity (e.g., bad, vice, evil; Meier et al., 2007; Meier & Robinson, 2004; Schubert, 2005). That work, however, does not clarify the behavioral consequences of imagined vertical movements.

Our work moves beyond merely documenting metaphorical associations of sensory-motor experiences and identifies a counterintuitive phenomenon. That is, mentally simulating upward movements results in lower motivation and worse performance, whereas the opposite is true for downward movements. This finding qualifies existing embodied cognition theory that associates the concept of up exclusively with positivity and the concept of down exclusively with negativity, by showing that

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upward (downward) verticality, when experienced as movement (i.e., going up/down), can result in negative (positive) outcomes.

Furthermore, we contribute to the embodied cognition literature by uncovering theory-substantiated mediators that explain the effects of imagined vertical movements on cognitive performance. In doing so, we follow the recommendations of Meier, Schnall, Schwarz, and Bargh (2012) for research on embodied cognition by (a) examining the theoretical process behind the observed metaphorical effects, and (b) including action-relevant outcome measures.

In sum, the present research uncovers unexpected effects of vertical imagery commonly used in advertising and how they impact consumer preferences. For instance, consider an ad showing people going up in an elevator. When consumers are exposed to this ad, they may mentally simulate upward movements and be less motivated to perform a variety of tasks such as working toward a reward, successfully processing information-rich brand materials, or decoding complex pricing schemes.

Vertical movement influences performance

Vertical movement and self-worth

In general, positivity and virtue are represented as being up, whereas negativity and vice are represented as being down. These mental associations are expressed in everyday language: Happy people feel *high*, whereas sad people feel *down*, good people go *up* to Heaven, whereas *bad* people go *down* to Hell (Meier & Robinson, 2004). Evidence for an association between *up* and *good* comes from research showing that positive words (e.g., hero) are evaluated faster when presented in the upper part of the screen, whereas for negative words (e.g., liar) the opposite is true (Meier & Robinson, 2004).

Everyday expressions like feeling *high*, going *up* to Heaven or standing *up* to adversity, however, are based on different sensory-motor experiences (e.g., being up, moving up, standing up), each creating a unique metaphorical association (Lakoff & Johnson, 1980a). Metaphorical associations, in fact, are likely established when a given sensory-motor experience and an abstract concept repeatedly co-occur (Lakoff & Johnson, 1999). Therefore, to examine metaphorical effects of “up” and “down,” one must make explicit the underlying sensory-motor experience. Our research focuses on upward and downward vertical movements, which are common physical experiences portrayed in advertising.

Drawing on Lakoff & Johnson (1980a), we hypothesize that imagining oneself moving up can result in positive self-worth through the UP IS MORE metaphor. The UP IS MORE metaphor is based on the mapping of vertical movement onto judgments of quantity (Lakoff & Johnson, 1980a). A metaphorical association between *up* and *more* might be created when a child repeatedly observes how adding/removing a substance to/from a container, such as water to/from a cup, increases/decreases its level (Lakoff & Johnson, 1980b). Further, since quantity is often associated with *better*, as suggested by the metaphorical association MORE IS BETTER

(Lakoff & Johnson, 1980b), an object or person that moves up should be associated with more value, as indicated by expressions like “the stock market went up” (Morris, Sheldon, Ames, & Young, 2007) and “the employee climbed the corporate ladder,” both connoting an association between improvement and greater amounts—of success or money—with upward movement. When an individual imagines moving either upward or downward, it is the self that *moves* up/down, and the self should then be judged as having more or less worth, respectively.

The next section provides theoretical support for the link between imagined vertical movements, self-worth, motivation, and cognitive performance.

Self-worth, motivation, and performance

Momentary changes to self-worth are likely to have motivational consequences (Crocker, Brook, Niiya, & Villacorta, 2006) as a result of one’s desire to maintain the integrity of the self (Steele, 1988). Specifically, a negative change in self-worth might lead to compensatory motives aimed at restoring one’s self-view, which leads people to engage in self-enhancing behaviors that can restore self-worth (Gao, Wheeler, & Shiv, 2009; Sivanathan & Pettit, 2010). One way to restore self-worth is to succeed at an ego-relevant task. In particular, the compensation hypothesis (Brunstein & Gollwitzer, 1996) suggests that after individuals’ sense of worth has been threatened, they tend to intensify efforts in a subsequent task that is relevant to restoring their sense of worth. For example, Brunstein and Gollwitzer (1996) found that medical students whose sense of worth was threatened by negative feedback concerning their competence as physicians performed better, compared with students who received no feedback, on a subsequent task when this was introduced as relevant to being a successful physician. As a result, imagining downward movement should lead to greater effort spent in ego-relevant activities; that is, activities where success or failure can have repercussions for one’s sense of worth.

Boosting self-worth can have the opposite effect, especially when the increase in self-worth is momentary and has a “fragile” or uncertain foundation (Crocker et al., 2006; Jones & Berglas, 1978; Kernis, 2003; Rhodewalt & Davison, 1986). Self-worth that is based on noncontingent positive feedback creates uncertainty about the reasons behind one’s sense of worth (Rhodewalt & Davison, 1986). Thus, individuals might engage in defensive behaviors, such as self-handicapping in the form of reduced effort toward future tasks, aimed at preemptively justifying potential failure on ego-relevant tasks (Jones & Berglas, 1978; Rhodewalt & Davison, 1986). As a result, individuals might withdraw efforts from subsequent tasks where they could fail, hedging just in case they are not able to solve the task (e.g., “I did not get it right because I did not even try”). Following this logic, Baumeister, Campbell, Krueger, and Vohs (2003) suggest that “artificially” boosted self-esteem can reduce subsequent performance. In fact, individuals with high artificial self-esteem are more likely to withdraw efforts from tasks that otherwise would provide them the opportunity to showcase their value (Tice, 1991).

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